MEMORANDUM TO THE SITE FILE
Elmendorf Air Force Base
Operable Unit 6

Site Name and Location

Elmendorf Air Force Base (EAFB)
Operable Unit 6 (OU 6) and Source Area SS19
Anchorage, AK 99506

Statement of Purpose

The purpose of this document (Memorandum to the Site File) is to present non-significant or minor changes to the Record of Decision (ROD) signed for OU 6 and Source Area SS19 at EAFB. The minor changes to the OU 6 ROD involve modifying the sampling frequency of groundwater wells. Other components to the OU 6 selected remedy will not be affected by this minor change.

The ROD for OU 6 and Source Area SS19 was originally signed in January 1997 by the United States Air Force (USAF), Environmental Protection Agency (EPA) and Alaska Department of Environmental Conservation (ADEC). It was prepared in accordance with Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and to the extent practicable, Section 300 of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP).

This Memorandum to the Site File was prepared in accordance with the "Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents", July 1999, Section 7.3.1 and Highlight 7-1.

Site History, Contamination and Selected Remedy

EAFB was proposed for the National Priorities List (NPL) in 1989 and placed on the NPL in August of 1990. In November of 1991, a Federal Facilities Agreement (FFA) was negotiated between the USAF, EPA and ADEC. The FFA established a procedural framework and schedule for all CERCLA activities conducted on EAFB. Twenty-nine disposal/source areas were identified and organized into seven operable units on the basis of geographic proximity and similar source characteristics or contaminants.

OU 6 consists of six different source areas, LF02, LF03, LF04, SD15, SD73 and WP14; three of the source areas are former landfills, LF02, LF03 and LF04, two of the source areas are sludge disposal pits, SD15 and WP14, and one source area is a surface disposal area, SD73.

Past landfill and waste management practices as well as leaking fuel distribution system lines are the primary sources of contamination in OU 6. The landfills were closed in the early 1980's and surface disposal of fuel waste has not been conducted since 1983. Active fuel distribution lines are still in use, but have had integrity testing to ensure they are not leaking. An underground storage tank and the contaminated soils in the vicinity of pump house building 30-790 (near LF04) were removed in 1996. The pump house was also removed from service at that time.

Source Area SS19 is a bunker located in the extreme northeast corner of the base. In the early 1960's this building was used to temporarily store pesticides prior to their disposal. A records search indicates no spills or releases occurred at SS19. Currently this building is used as an equipment storage area for the EAFB Civil Engineering Squadron.

The selected remedies in the ROD for OU 6 address the associated risks by a combination of actions to reduce contamination below cleanup levels and institutional controls to prevent exposure to contamination above those cleanup levels. The major components for the selected remedies, which address the principal threats posed by the conditions within the OU 6 source areas, are presented below.

Source Area LF02

- **Groundwater (including Seeps)**
  - Access to groundwater at LF02 will be institutionally controlled. LF02 is currently designated as a "restricted use area" in the Base Comprehensive Plan. This designation provides for recreational use of the parcel (cross country skiing, etc.) and for construction of unmanned facilities such as a parking lot, storage building or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. The Base Comprehensive Plan also restricts drilling into the shallow aquifer. As a former landfill, LF02 will maintain this designation indefinitely.
  - Groundwater will be monitored semi-annually and evaluated annually to determine contaminant migration and to track the progress of contaminant degradation and dispersion, as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action, including an evaluation of any changed site condition, as long as contamination remains above cleanup levels.
  - Groundwater monitoring will be discontinued if contaminant levels are below cleanup levels during two consecutive monitoring events. In that case, no further action for groundwater will be required.
  - During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded maximum contaminant levels during the 1994 investigation including volatile organic compounds and semi-volatile organic compounds. These results will be evaluated before a final determination is made that groundwater meets all cleanup requirements.
  - All groundwater is expected to be cleaned up within 23 years.

- **Soil**
  - Access to soil at LF02 will be institutionally controlled. LF02 is currently designed as a "restricted use area" in the Base Comprehensive Plan. This designation provides for recreational use of the parcel (cross country skiing, etc.) and for construction of unmanned facilities such as a parking lot, storage building or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. As a former landfill, LF02 will maintain this designation indefinitely.
  - A limited soil cover will be applied in three areas with elevated lead concentrations at LF02. This will eliminated the pathway for contact with the lead contamination. Five-year reviews will be conducted to evaluate the integrity

of the cover, evaluated impacts from any changed site conditions and assess the continued protectiveness of this remedial action.

- Landfill debris on top of or protruding from the ground surface at LF02 will also be removed as part of the specific remedy for this area.
- Hazardous materials encountered during the removal event will be handled according to appropriate regulations.
- No further action will be required as a means of closing LF02.

Source Area LF03

- No further action is required for the groundwater and soil; no further action will be required as means of closing the LF03 landfill.

Source Area LF04

- **Groundwater at LF04 North/Beach**
  - No further action will be required for the groundwater at LF04 North/Beach.
- **Groundwater at LF04 South**
  - Access to groundwater at LF04 South will be institutionally controlled. LF04 is currently designed as a "restricted use area" in the Base Comprehensive Plan. This designation provides for recreational use of the parcel (cross country skiing, etc.) and for construction of unmanned facilities such as a parking lot, storage building or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. Drilling in the shallow aquifer is also restricted by the Base Comprehensive Plan. As a former landfill, LF04 will maintain this designation indefinitely.
  - Groundwater will be monitored and evaluated annually to determine contaminant migration and to track the progress of contaminant degradation and dispersion, as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action, including an evaluation of any changed site condition, as long as contamination remains above cleanup levels.
  - Recoverable quantities of free product found on top of the water table at LF04 will be regularly removed during groundwater monitoring events.
  - Groundwater monitoring will be discontinued if contaminant levels are below cleanup levels during two consecutive monitoring events. In that case, no further action for groundwater will be required.
  - During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded maximum contaminant levels during the 1994 investigation including volatile organic compounds, semi-volatile organic compounds and metal. These results will be evaluated before a final determination is made that groundwater meets all cleanup requirements.
  - All groundwater is expected to be cleanup up within 14 years.

Source Area LF04

- **Soil at LF04 North/Beach**
  - Access to soil at LF04 North/Beach will be institutionally controlled. LF04 is currently designed as a "restricted use area" in the Base Comprehensive Plan. This designation provides for recreational use of the parcel (cross country skiing, etc.) and for construction of unmanned facilities such as a parking lot, storage

building or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. As a former landfill, LF04 will maintain this designation indefinitely.

- No further action is required for soil at North/Beach; however, landfill debris on the beach from LF04 will be removed annually as the specific remedy for this area.
- Removal of debris will include all LF04 landfill material which has fallen onto the beach which can be reasonable collected for disposal, as well as debris on the bluff slope or other low lying area which can be accessed and removed without hazard.
- Hazardous materials encountered during annual removal events will be handled according to appropriate regulations.
- The removal of debris from the beach at LF04 is expected to continue annually for 30 years or as long as the landfill remains subject to erosional action by tides. Five-year reviews will assess the protectiveness of the remedial action, including evaluation of any changed site conditions.
- No further action will be required as a means of closing the LF04 landfill

- **Soil at LF04 South**
  - No further action is required for the soil at LF04 South.

Source Area SD15

- **Perched Aquifer Groundwater at SD15**
  - Institutional controls on land use and water use, as specified in the Base Comprehensive Plan, will restrict access to the contaminated groundwater throughout SD15. Installation of wells in the contaminated plume for residential, industrial or agricultural use will be prohibited by the Base Comprehensive Plan until cleanup levels have been achieved.
  - Groundwater in the perched aquifer at SD15 will be treated by high-vacuum extraction process to remove fuel related contaminants and halogenated volatile organ compounds.
  - Recoverable quantities of free product found on top of the water table at SD15 will be removed through the high-vacuum extraction process.
  - Treated water will be re-injected into the subsurface beyond the boundary of the contaminated aquifer. Re-injected water will be regularly monitored to ensure it meets cleanup and risk requirements.
  - Groundwater remaining above cleanup levels will continue to be monitored semi-annually and evaluated annually to determine contaminant migration and to track the progress of the high-vacuum extraction treatment, as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action, including an evaluation of any changed site conditions, as long as contamination remains above cleanup levels.
  - When two consecutive groundwater monitoring events indicate contaminant concentrations are below cleanup levels, the high-vacuum extraction system will be shut off. Semi-annual monitoring will continue for another year and subsurface soil samples will be collected. If levels are confirmed to be below cleanup levels one year after the system was shut off, no further remedial action

will be required. If contamination is present in any of the samples, the system will be restarted or another remedial option will be considered.

- During the final round of monitoring, samples will be collect and analyzed for all constituents that exceeded maximum contaminant levels during the 1994 investigation including volatile organic compounds, and arsenic. These results will be evaluated before a final decision is made that groundwater meets all cleanup requirements.
- All groundwater is expected to be cleaned up within five years.

Deep Aquifer Groundwater at SD15

- No further action is required for the deep aquifer groundwater.

Soil at SD15

- Shallow soils (less than 15 feet) with contamination above cleanup levels will be excavated, removed and thermally treated to eliminate fuel related contaminants. After treatment, no further action will be required for the shallow soils.
- Deep soils at SD15 will be actively treated through air stripping associated with the high-vacuum extraction process described for the perched aquifer groundwater.
- Soils with contamination above cleanup level will be sampled one year after system start up and every three years thereafter to evaluate contaminant migration and timely reduction of contaminant concentration by high-vacuum extraction. If cleanup levels are not being achieved, further remedial action will be evaluated. This will include five-year reviews to assess the protectiveness of the remedial action, including an evaluation of any changed site conditions, as long as contamination remains above cleanup level.
- When two consecutive groundwater monitoring events indicate contaminant concentrations are below cleanup levels, the high-vacuum extraction system will be shut off. Semi-annual monitoring will continue for another year and subsurface soil samples will be collected. If levels are confirmed to be below cleanup levels one year after the system was shut off, no further remedial action will be required. If contamination is present in any of the samples, the system will be restarted or another remedial option will be considered.
- All soils are expected to be cleaned up within five years.

Source Area WP14

- **Groundwater at WP14**
  - Institutional control on land use and water use as specified in the Base Comprehensive Plan will restrict access to the contaminated groundwater through out WP14. Installation of wells in the contaminated plume for residential, industrial and agricultural use will be prohibited by the Base Comprehensive Plan until cleanup levels have been achieved.
  - Groundwater will be monitored semi-annually and evaluated to determine contaminant migration and to track the progress of contaminant degradation and dispersion as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action including an evaluation of any changed site conditions also long as contamination remains above cleanup levels.

- Recoverable quantities of free product found on top of the water table at WP14 will be regularly removed during groundwater monitoring events.
- Groundwater monitoring will be discontinued if contaminant levels are below cleanup levels during two consecutive monitoring events. In that case, no further action for groundwater will be required.
- During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded maximum contaminant levels during the 1994 investigation including volatile organic compounds, semi-volatile organic compounds and metals. These results will be evaluated before a final determination is made that groundwater meets all cleanup requirements.
- All groundwater is expected to be cleaned up within 14 years.

- **Soil at WP14**
  - No further action will be required for the soil at WP14.

Source Area SD73

- No further action is required for the groundwater.
- No further action is required for the soil.

Source Area SS19

- No further action is required for groundwater.
- No further action is required for soil.

The selected remedies for groundwater and soils have been implemented and are currently ongoing. Groundwater monitoring for OU 6 is included as part of the EAFB Basewide Environmental Monitoring Program (Basewide Monitoring Program). The Basewide Monitoring Program was established to integrate the needs of multiple environmental programs and compliance issues included in the FFA, State-Elmendorf Environmental Restoration Agreement (SERA), CERCLA regulations and the Resource Conservation and Recovery Act (RCRA).

Basis for this Document

This minor revision to the ROD changes the sampling frequency for groundwater monitoring. Data collected semi-annually over the past seven years has provided an understanding of the nature and extent of contaminant migration and the effectiveness of intrinsic (natural) remediation. In many instances continuation of the semi-annual sampling would not provide any useful new data as compared to less frequent monitoring.

The following table presents the components of the ROD and the minor changes that are proposed.

Record Of Decision Component	Proposed Change
Source Area LF02 *Groundwater* Access to groundwater at LF02 will be institutionally controlled. LF02 is currently designated as a "restricted use area" in the Base Comprehensive Plan. This designation provides for recreational use of the parcel (cross country skiing, etc.) and for construction of unmanned facilities such as a parking lot, storage building or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. The Base Comprehensive Plan also restricts drilling into the shallow aquifer. As a former landfill, LF02 will maintain this designation indefinitely.	No change
Groundwater will be monitored semi-annually and evaluated annually to determine contaminant migration and to track the progress of contaminant degradation and dispersion, as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action, including an evaluation of any changed site condition, as long as contamination remains above cleanup levels.	Sampling changed from semi-annually to a frequency determined by the Decision Guide (Attachment 1).
Groundwater monitoring will be discontinued if contaminant levels are below cleanup levels during two consecutive monitoring events. In that case, no further action for groundwater will be required.	No change
During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded MCLs during the 1994 investigation including volatile organic compounds and semi-volatile organic compounds. These results will be evaluated before a final determination is made that groundwater meets all cleanup requirements.	No change
All groundwater is expected to be cleaned up within 23 years.	No change
Source Area LF02 *Soil at LF02* Access to soil at LF02 will be institutionally controlled. LF02 is currently designed as a "restricted use area" in the Base Comprehensive Plan. This designation provides for recreational use of the parcel (cross country skiing, etc.) and for construction of unmanned facilities such as a parking lot, storage building or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. As a former landfill, LF02 will maintain this designation indefinitely.	No change
A limited soil cover will be applied in three areas with elevated lead concentrations at LF02. This will eliminated the pathway for contact with the lead contamination. Five-year review will be conducted to evaluate the integrity of the cover, evaluated impacts from any changed site conditions and assess the continued protectiveness of this remedial action.	No change
Landfill debris on top of or protruding from the ground surface at LF02 will also be removed as part of the specific remedy for this area.	No change
Hazardous materials encountered during the removal event will be handled according to appropriate regulations.	No change
No further action will be required as a means of closing LF02.	

Record Of Decision Component (continued)	Proposed Change (continued)
Source Area LF03	
No further action is required for the groundwater.	No change
No further action is required for the soil.	No change
No further action will be required as a means of closing the LF03 landfill.	No change
Source Area LF04	
Groundwater at LF04 North/Beach	
No further action will be required for the groundwater at LF04 North/Beach.	No change
Groundwater at LF04 South:	
Access to groundwater at LF04 South will be institutionally controlled. LF04 is currently designed as a "restricted use area" in the Base Comprehensive Plan. This designation provides for recreational use of the parcel (cross country skiing, etc.) and for construction of unmanned facilities such as a parking lot, storage building or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. Drilling in the shallow aquifer is also restricted by the Base Comprehensive Plan. As a former landfill, LF04 will maintain this designation indefinitely.	No change
Groundwater will be monitored and evaluated annually to determine contaminant migration and to track the progress of contaminant degradation and dispersion, as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action, including an evaluation of any changed site condition, as long as contamination remains above cleanup levels.	Sampling changed from semi-annually to a frequency determined by the Decision Guide (Attachment 1).
Recoverable quantities of free product found on top of the water table at LF04 will be regularly removed during groundwater monitoring events.	No change
Groundwater monitoring will be discontinued if contaminant levels are below cleanup levels during two consecutive monitoring events. In that case, no further action for groundwater will be required.	No change
During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded MCLs during the 1994 investigation including volatile organic compounds, semi-volatile organic compounds and metal. These results will be evaluated before a final determination is made that groundwater meets all cleanup requirements.	No change
All groundwater is expected to be cleanup up within 14 years.	No change
Soil at LF04 North/Beach	
Access to soil at LF04 North/Beach will be institutionally controlled. LF04 is currently designed as a "restricted use area" in the Base Comprehensive Plan. This designation provides for recreational use of the parcel (cross country skiing, etc.) and for construction of unmanned facilities such as a parking lot, storage building or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. As a former landfill, LF04 will maintain this designation indefinitely.	No change No change

Record Of Decision Component (continued)	Proposed Change (continued)
Soil at LF04 North/Beach (continued) No further action is required for soil at North/Beach; however, landfill debris on the beach from LF04 will be removed annually as the specific remedy for this area.	No change
Removal of debris will include all LF04 landfill material which has fallen onto the beach which can be reasonable collected for disposal, as well as debris on the bluff slope or other low lying area which can be accessed and removed without hazard.	No change
Hazardous materials encountered during annual removal events will be handled according to appropriate regulations.	No change
The removal of debris from the beach at LF04 is expected to continue annually for 30 years or as long as the landfill remains subject to erosional action by tides. Five-year reviews will assess the protectiveness of the remedial action, including evaluation of any changed site conditions.	No change
No further action will be required as a means of closing the LF04 landfill.	No change
Soil at LF04 South No further action is required for the soil at LF04 South	No change
Source Area SD15 *Perched Aquifer Groundwater at SD15* Institutional controls on land use and water use, as specified in the Base Comprehensive Plan, will restrict access to the contaminated groundwater throughout SD15. Installation of wells in the contaminated plume for residential, industrial or agricultural use will be prohibited by the Base Comprehensive Plan until cleanup levels have been achieved.	No change
Groundwater in the perched aquifer at SD15 will be treated by high-vacuum extraction process to remove fuel related contaminants and halogenated volatile organ compounds.	No change
Recoverable quantities of free product found on top of the water table at SD15 will be removed through the high-vacuum extraction process.	No change
Treated water will be re-injected into the subsurface beyond the boundary of the contaminated aquifer. Re-injected water will be regularly monitored to ensure it meets cleanup and risk requirements.	No change
Groundwater remaining above cleanup levels will continue to be monitored semi-annually and evaluated annually to determine contaminant migration and to track the progress of the high-vacuum extraction treatment, as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action, including an evaluation of any changed site conditions, as long as contamination remains above cleanup levels.	Sampling changed from semi-annually to a frequency determined by the Decision Guide (Attachment 1).

Record Of Decision Component (continued)	Proposed Change (continued)
Source Area SD15 (continued) *Perched Aquifer Groundwater at SD15* When two consecutive groundwater monitoring events indicate contaminant concentrations are below cleanup levels, the high-vacuum extraction system will be shut off. Semi-annual monitoring will continue for another year and subsurface soil samples will be collected. If levels are confirmed to be below cleanup levels one year after the system was shut off, no further remedial action will be required. If contamination is present in any of the samples, the system will be restarted or another remedial option will be considered.	No change
During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded MCLs during the 1994 investigation including volatile organic compounds and arsenic. These results will be evaluated before a final decision is made that groundwater meets all cleanup requirements.	No change
All groundwater is expected to be cleaned up within five years.	Cleanup times need to be revised.
Deep Aquifer Groundwater at SD15 No further action is required for the deep aquifer groundwater.	No change
Soil at SD15 Shallow soils (less than 15 feet) with contamination above cleanup levels will be excavated, removed and thermally treated to eliminate fuel related contaminants. After treatment, no further action will be required for the shallow soils.	No change
Deep soils at SD15 will be actively treated through air stripping associated with the high-vacuum extraction process described for the perched aquifer groundwater.	No change
Soils with contamination above cleanup level will be sampled one year after system start up and every three years thereafter to evaluate contaminant migration and timely reduction of contaminant concentration by high-vacuum extraction. If cleanup levels are not being achieved, further remedial action will be evaluated. This will include five-year reviews to assess the protectiveness of the remedial action, including an evaluation of any changed site conditions, as long as contamination remains above cleanup levels.	No change
When two consecutive groundwater monitoring events indicate contaminant concentrations are below cleanup levels, the high-vacuum extraction system will be shut off. Semi-annual monitoring will continue for another year and subsurface soil samples will be collected. If levels are confirmed to be below cleanup levels one year after the system was shut off, no further remedial action will be required. If contamination is present in any of the samples, the system will be restarted or another remedial option will be considered.	No change
All soils are expected to be cleaned up within five years.	Cleanup times need to be revised.

Record Of Decision Component (continued)	Proposed Change (continued)
Source Area WP14 *Groundwater at WP14* Institutional control on land use and water use as specified in the Base Comprehensive Plan will restrict access to the contaminated groundwater through out WP14. Installation of wells in the contaminated plume for residential, industrial and agricultural use will be prohibited by the Base Comprehensive Plan until cleanup level have been achieved.	No change
Groundwater will be monitored semi-annually and evaluated to determine contaminant migration and to track the progress of contaminant degradation and dispersion as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action including an evaluation of any changed site conditions as long as contamination remains above cleanup levels.	Sampling changed from semi-annually to a frequency determined by the Decision Guide (Attachment 1).
Recoverable quantities of free product found on top of the water table at WP14 will be regularly removed during groundwater monitoring events.	No change
Groundwater monitoring will be discontinued if contaminant levels are below cleanup levels during two consecutive monitoring events. In that case, no further action for groundwater will be required.	No change
During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded MCLs during the 1994 investigation including volatile organic compounds, semi-volatile organic compounds and metals. These results will be evaluated before a final determination is made that groundwater meets all cleanup requirements.	No change
All groundwater is expected to be cleaned up within 14 years.	No change
Soil at WP14 No further action will be required for the soil at WP14.	No change
Source area SD73 No further action is required for the groundwater. No further action is required for the soil.	 No change No change
Source Area SS19 No further action is required for groundwater. No further action is required for soil.	 No change No change

* Monitoring wells are listed in both LF04 and WP14 revised remedies
MCL – maximum contaminant level

The changes to the sampling frequency will continue to provide sufficient data to assess contaminant migration and timely reduction of contaminant concentrations by intrinsic remediation as required by the ROD. The revised monitoring frequency will also streamline the groundwater reporting process and reduce monitoring costs.

These changes to the sampling frequencies were discussed in the August 28, 2002 meeting between the USAF, Region X of the EPA and the ADEC (see Attachment 2). Both EPA and ADEC project managers concurred with the proposed changes.

This change in the ROD does not significantly change or fundamentally affect the remedy selected in the ROD; therefore, no public comment is required.

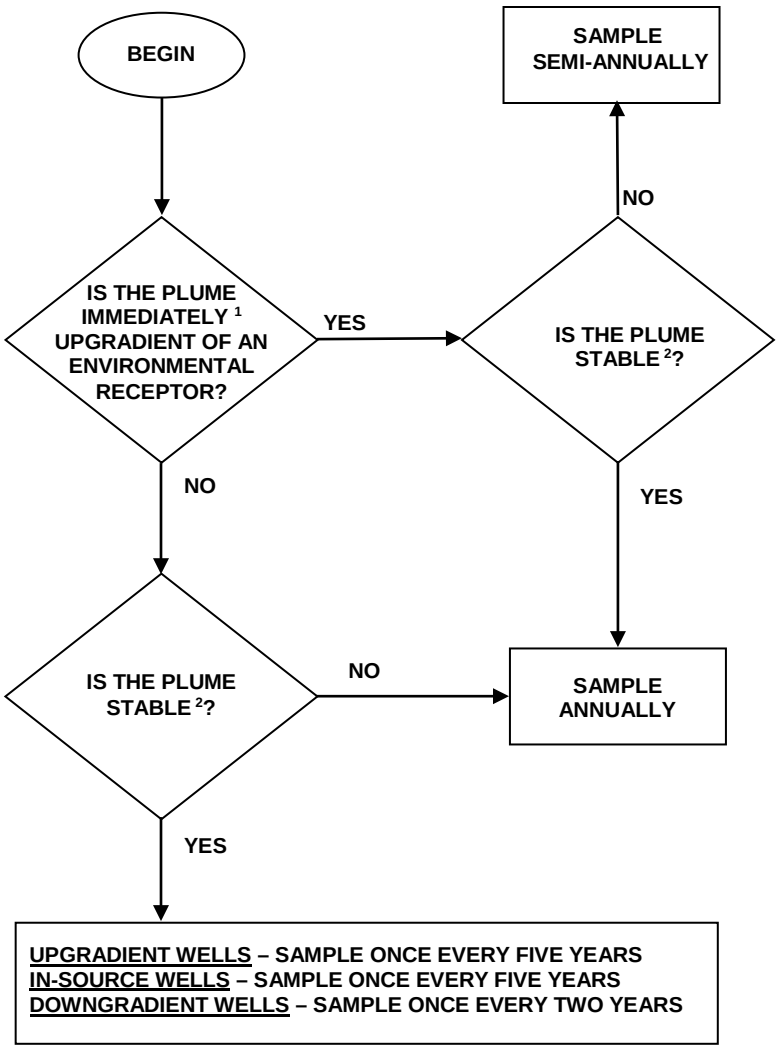
DOUGLAS L. MILLER, Colonel, USAF
Vice Commander

KEVIN OATES
Region X, US EPA

LOUIS HOWARD
Alaska Department of Environmental Conservation

Attachments:
1. Basewide Monitoring Program Well Sampling Frequency Decision Guide
2. Status Meeting Minute: Elmendorf Basewide Monitoring Program

Attachment 1. Basewide Monitoring Program Well Sampling Frequency Decision Guide.



Definitions:

[1] **Immediately Upgradient**: Means within a two-year warning line, similar to that generated for OU 5.

[2] **Stable Plume:** A stable plume has defined boundaries with stable or decreasing contaminant concentrations.

At present, the following plumes are not considered stable:

- Slammer/Arctic Warrior Plume
- Fairchild/Arctic Warrior Plume
- Kenney Avenue Plume
- SP1-02 Plume

Notes:

1. Seeps are sampled annually, unless they exceed cleanup levels in which case they are sampled quarterly.
2. Wells with historical free product will be monitored annually for free product occurrence. Active product recovery will continue in wells with recoverable free product.
3. Sampling frequencies can be modified as needed to support site closure or modeling results.
4. Surface water sampling at OU 5 (Ship Creek) will be performed annually.

Attachment 2

STATUS MEETING MINUTE
ELMENDORF BASEWIDE MONITORING PROGRAM
AUGUST 28, 2002

Attendees: Joe Williamson (USAF), Cindy Hood (AFCEE), Terry Beach (AFCEE), Kevin Oates (EPA), Louis Howard (ADEC), Cory Hinds (URS), Russ Beck(URS)

Agenda:

- Review of soil gas surveys and new well locations
- Recommendation for treatment of TCE at OU5 Seeps 9, 10, and 11 in the existing Wetland Remediation System
- Well sampling frequencies for 2003

Soil Gas Survey and New Well Locations

Results from Gore Sorber® soil gas surveys at two locations in OU5 (Diesel Maintenance Shop and Gas Station plume) were discussed. The survey consisted of placement of the passive Sorbers® in server lines perpendicular to the direction of groundwater flow in areas associated with TCE plumes in groundwater. The purpose of the soil gas survey was to further delineate the source of the TCE plume and to guide placement of monitoring wells. Color plots of contaminant mass at each area were distributed for discussion

The soil gas survey at the Diesel Maintenance Shop (upgradient of Seeps 9, 10, and 11) indicated that the source of TCE was the Diesel Maintenance Shop. It was brought to the attention of Kevin Oates that EPA granted RCRA closure at this facility in 1995. URS agreed to send Kevin a copy of the closure report. Interestingly, no TCE was detected immediately upgradient or down gradient of monitoring well 403-MW-01 which contained approximately 60 ppb TCE in recent sampling. Additional soil gas investigation is underway near this well to find out what is going on. Discussions with the Gore representative indicated that the technology should be capable of sensing TCE at our depths to groundwater. Two new wells (OU5MW-35 and –36) have been installed downgradient of the Diesel Maintenance shop but upgradient of the Seeps 9, 10, and 11.

The soil gas survey at the Gas Station plume (AKA the Dallas Housing area) indicated that there was little to no TCE contamination extending south of the known TCE plume. Low levels of TCE was identified south of the Corps of Engineers Building. One new well was installed south of the known plume. [*Latest results obtained since the meeting show TCE at 30 ppb in this new well (OU5MW-34). This indicates that this well is within the TCE plume, and the TCE plume extends further south than previously thought. An additional well or wells will be installed downgradient of this well next year following the housing construction.*]

OU5: Seeps 9, 10, and 11

A report titled Draft Technical Memorandum Trichlorethene Collection and Treatment Alternatives Operable Unit 5 Engineered Wetland Remediation System was summarized and discussed. The report concluded that the best (technically appropriate, least cost, fastest) method of treating the TCE in Seeps 9, 10, and 11 is to divert these seeps into the adjacent Wetland Cell. TCE is degraded via phytoremediation (breakdown and synthesis by plants).

Diversion of the seeps could take place as early as 2004. The Air Force needs to make sure that the seeps are on the EAFB easement. Design will need to take place in 2003. Diversion of the seeps will also be based on upgradient water quality. New data upgradient of the seeps will be provided by the installation of two new wells (OU5MW-35 and –36) in 2002. The decision on whether to proceed with seep diversion will be based on all available data and will be made in October, 2002.

EPA felt this was a fair assessment, but wanted to know what would happen if increasing concentrations of TCE were found upgradient of the seeps. AF will use the OU 5 Wetlands decision guide [*Decision Process for Increased Remedial Activity, Figure 5-2, 2001 Annual Technical Report Operable Unit 5*], which may need to be revised. It was agreed that the decision guide should be modified so that seeps are collected if there is evidence of a continued source or increasing COC concentrations.

The diversion of seeps will require excavation of soil/sediment that may be contaminated. Air Force may need to treat excavated soil from the project off-site because landfarming of contaminated soil, as outlined in the OU 5 ROD, is no longer an option on EAFB. This change will require an ESD. If the Air Force will keep a list of things that differ from the ROD, the EPA would be able to direct them as to which of these need an ESD. Both ADEC and EPA are comfortable with the Air Force approach to dealing with the seeps.

2003 Monitoring Well Sampling Frequencies

URS presented the new proposed Basewide decision guide for determining sampling frequencies for monitoring wells. Proposed monitoring frequencies are based on position of plumes relative to environmental receptors. Plumes immediately upgradient of a receptor were proposed for annual sampling. Plume not immediately upgradient of a receptor were proposed for sampling every 2 to 5 years.

EPA pointed out that this guide is only appropriate for stable plumes and suggested that we add a box to include a decision for unstable plumes. Unstable plumes should be sampled semi-annually if upgradient of a receptor or within the early warning line in OU 5.

URS presented the new sampling frequency table, which is based on plumes rather than program areas. EPA and ADEC agree that it makes sense to organize on a plume-by-plume basis instead of by program area. The Air Force mentioned that there will be additional wells required for the early warning system at OU5, and that some of the early warning sampling will be conducted using passive diffusion bags. Use of the passive bags may mean that it is feasible to sample in the winter. EPA, ADEC, and URS agreed on modification of sampling frequencies. In general, sampling frequencies were increased when the plumes were close to a receptor (i.e., Ship Creek) or the concentrations of contaminants were increasing. A list of the agreed sampling frequencies is attached.

Additional items discussed:

- WP14: Air Force mentions reducing number of wells. ADEC mentions an early warning system. These will be discussed later.
- Air Force will investigate the floating product at OU4 West.